In the Claims:

1. (Currently Amended): A method of growing silicon carbide, the method comprising:

introducing a seed of silicon carbide into a sublimation system;

introducing a silicon carbide electrode into the sublimation system;

introducing a second electrode into the sublimation system adjacent the silicon carbide electrode, wherein the silicon carbide electrode and the second electrode are separated by a gap;

establishing an electric arc across the gap between the silicon carbide electrode and the second electrode to vaporize at least part of the silicon carbide electrode and cause at least some of the vaporized silicon carbide materials to form silicon carbide on the silicon carbide seed; and

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controlling the power dissipated across the gap to control a flow of vaporized Si, Si_2C and SiC_2 from the silicon carbide electrode to the seed of silicon carbide.

2. (Original): The method of Claim 1, wherein the second electrode is a silicon carbide electrode.

3. (Currently Amended): The method of Claim 2, wherein ~~further comprising~~ controlling the power dissipated across the gap further controls a ~~to control the~~ flow of vaporized Si, Si_2C and SiC_2 from ~~the silicon carbide electrode and~~ the second electrode to the seed of silicon carbide ~~crystal~~.

4. (Currently Amended): The method of Claim 3 ~~2~~, wherein controlling the power dissipated across the gap comprises moving at least one of the silicon carbide electrode and the second electrode as they vaporize during the sublimation process to maintain a constant gap between the silicon carbide electrode and the second electrode.

5. (Original): The method of Claim 2, further comprising maintaining the pressure within the sublimation system at a substantially constant level during the sublimation process.

6. (Cancelled)

7. (Currently Amended): The method of Claim 1~~6~~, wherein the power dissipated across the gap is controlled to maintain a substantially constant flow of vaporized Si, Si_2C and SiC_2 per unit area per unit time from the silicon carbide electrode to the seed crystal.

8. (Currently Amended): The method of Claim 1 ~~6~~, wherein controlling the power dissipated across the gap comprises moving at least one of the silicon carbide electrode and the second electrode during the sublimation process to maintain a constant gap between the silicon carbide electrode and the second electrode.

9. (Original): The method of Claim 1, further comprising moving at least one of the silicon carbide electrode and the second electrode to maintain a substantially constant separation between the silicon carbide electrode and the second electrode.

10. (Original): The method of Claim 1, further comprising maintaining the pressure within the sublimation system at a substantially constant level during the sublimation process.

11. (Currently Amended): The method of Claim 10, where the substantially constant pressure level is ~~pre-selected~~ set to ensure that a specific ~~for growth of a pre-selected~~ polytype of silicon carbide is grown.

12. (Original): The method of Claim 10, further comprising:

raising the temperature of the seed to a temperature lower than the temperature at which silicon carbide sublimes; and

raising the temperature of the silicon carbide electrode to a temperature lower than the temperature at which silicon carbide sublimes.

13. (Currently Amended): The method of Claim 12, wherein the sublimation system includes a furnace, and wherein the method further comprises ~~further comprising~~ raising the temperature of the inner walls of the furnace to a temperature higher than the temperature of the seed.

14. (Currently Amended): The method of Claim 1, wherein the internal temperature of the sublimation system ~~furnace~~, the position of the silicon carbide electrode and the second electrode, ~~the~~ a voltage drop across the gap and ~~the~~ a current conducted across the gap are configured so as to maintain the end of the silicon carbide electrode adjacent the gap at a substantially constant temperature during the sublimation process.

15. (Currently Amended): The method of Claim 14, where the substantially constant temperature is set to ensure that a specific ~~pre-selected for growth of a pre-selected~~ polytype of silicon carbide is grown.

16. (Currently Amended): The method of Claim 1 ~~6~~, wherein controlling the power dissipated across the gap to control ~~the~~ a flow of vaporized Si, Si_2C and SiC_2 from the silicon carbide electrode to the seed crystal comprises:

sensing a voltage drop across the gap; and

adjusting the relative location of the silicon carbide electrode and the second electrode so as to maintain the voltage drop at a constant level.

17. (Original): The method of Claim 16, further comprising rotating the seed during at least part of the sublimation process.

18. (Currently Amended): The method of Claim 1 ~~6~~, wherein establishing an electric ~~a high temperature~~ arc between the silicon carbide electrode and the second electrode comprises activating an alternating current power supply that is electrically connected to one of the silicon carbide electrode and the second electrode.

19. (Original): The method of Claim 18, wherein the frequency at which the alternating current power supply is operated is selected to maintain substantially the same rate of vaporization of the silicon carbide electrode.

20. (Original): The method of Claim 2, wherein the silicon carbide electrode is formed by sintering silicon carbide powder.

21. (Original): The method of Claim 20, wherein the silicon carbide electrode is formed from an n-type carrier rich silicon carbide source powder.

22. (Original): The method of Claim 20, wherein the silicon carbide electrode is formed from a p-type carrier rich silicon carbide source powder.

23. (Currently Amended): The method of Claim 2, wherein the internal temperature of the sublimation system ~~furnace~~, the pressure within the sublimation system ~~furnace~~ and the voltage and current associated with the electric arc are maintained so as to heat a constant volume of the silicon carbide electrode above the temperature where sublimation occurs during a ~~the~~ crystal growth phase of the sublimation process.

24. (Currently Amended): A method of growing silicon carbide, the method comprising:

establishing an electrical arc between a pair of electrodes spaced apart by a gap in order to electrically arc ~~arcing~~ a silicon carbide source to sublimate silicon and

carbon containing material from the silicon carbide source and cause at least some of the silicon and carbon containing material to form silicon carbide on a silicon carbide seed; and

controlling the power dissipated across the gap to control the flow of vaporized Si, Si_2C and SiC_2 from the silicon carbide source to the silicon carbide seed.

25. (Cancelled)

26. (Currently Amended): The method of Claim 24, ~~further comprising controlling the power dissipated across a gap between the pair of spaced apart silicon carbide electrodes to control the flow of vaporized Si, Si_2C and SiC_2 from the pair of silicon carbide electrodes to the silicon carbide seed~~ wherein the electrodes are silicon carbide electrodes that serve as the silicon carbide source.

27. (Original): The method of Claim 26, wherein the power dissipated across the gap is controlled to maintain a substantially constant flow of vaporized Si, Si_2C and SiC_2 per unit area per unit time from the pair of silicon carbide electrodes to the silicon carbide seed.

28. (Original): The method of Claim 26, wherein controlling the power dissipated across the gap comprises moving at least one of the pair of silicon carbide electrodes as they vaporize during the sublimation process to maintain a constant gap between the pair of silicon carbide electrodes.

29. (Original): The method of Claim 24, further comprising maintaining the pressure within the sublimation system at a substantially constant level during the sublimation process.

30. (Currently Amended): The method of Claim 24 ~~25~~, wherein the sublimation process occurs within a heated furnace, and wherein internal temperature of the furnace, the position of the pair of silicon carbide electrodes, the voltage drop across the spacing between the pair of ~~silicon carbide~~ electrodes and the arc current are configured so as to maintain the ends of the pair of ~~silicon carbide~~ electrodes adjacent the arc at a substantially constant temperature during the sublimation process.

31. (Original): The method of Claim 26, wherein controlling the power dissipated across the gap to control the flow of vaporized Si, Si_2C and SiC_2 from the pair of silicon carbide electrodes to the silicon carbide seed comprises:

sensing a voltage drop across the gap; and

adjusting the relative location of the silicon carbide electrodes so as to maintain the voltage drop at a constant level.

32. (Currently Amended): The method of Claim 24, wherein the sublimation process occurs within a heated furnace, and wherein ~~the~~ an internal temperature of the furnace, a ~~the~~ pressure within the furnace and the voltage and current associated with the arc are maintained so as heat a constant volume of the silicon carbide source above the temperature where sublimation occurs during a ~~the~~ crystal growth phase of the sublimation process.

33. (Currently Amended): A method of growing silicon carbide, the method comprising:

using resistive or inductive heating to heat ~~heating~~ a furnace to a temperature below the temperature at which silicon carbide sublimes;

using an electric arc to create ~~creating~~ a local high temperature zone within ~~a~~ the furnace that is above the temperature at which silicon carbide sublimes while maintaining the inner walls of the furnace at a temperature below the temperature at which silicon carbide sublimes;

introducing a silicon carbide source material into the high temperature zone to sublimate silicon and carbon containing material from the silicon carbide source and cause at least some of the silicon and carbon containing material to form silicon carbide on a silicon carbide seed.

34. (Cancelled)

35. (Original): The method of Claim 33, wherein the silicon carbide source material is introduced into the high temperature zone by moving the silicon carbide source material.

36. (Currently Amended): The method of Claim 33, wherein the silicon carbide source material is introduced into the high temperature zone by moving a ~~the~~ heating source used to create the local high temperature zone.

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37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Original): The method of Claim 1, wherein the silicon carbide seed is a monocrystalline seed of silicon carbide, and wherein the silicon carbide formed on the monocrystalline silicon carbide seed is monocrystalline silicon carbide.

47. (Original): The method of Claim 24, wherein the silicon carbide formed on the silicon carbide seed is monocrystalline silicon carbide.

48. (Original): The method of Claim 2, wherein the silicon carbide electrode is formed from silicon carbide powder grown by a chemical vapor deposition technique.